



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

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Molly Joseph Ward  
Secretary of Natural Resources

David K. Paylor  
Director

(804) 698-4020  
1-800-592-5482

April 1, 2016

Mr. Kevin Gouldman  
Northern Neck Water Inc.  
4542 Horners Mill Rd.  
Montross, VA 22520

**SENT VIA E-MAIL: [NNwater@gmail.com](mailto:NNwater@gmail.com)**

Re: Existing User Groundwater Withdrawal Permit Transmittal  
Permit Number GW00108EU  
Bells Cove Water System, Northumberland County, Virginia

Dear Mr. Gouldman,

Pursuant to Title 62.1, Chapter 25, Code of Virginia, 1950, as amended, (The Ground Water Management Act of 1992) the Director has authorized issuance of a permit to utilize groundwater. These permits limit the monthly and annual volumes of withdrawal based on the applications and documented use. Further these permits limit the daily withdrawals based on the permitted system design capacities in the Waterworks Operations Permits issued by the Virginia Department of Health.

The completed permits are enclosed for your records. Please note the requirement to record meter readings each month. Monthly use of ground water shall be reported to the Department of Environmental Quality by the tenth (10<sup>th</sup>) day of each January, April, July, and October on the enclosed Groundwater Withdrawal Reporting Form. You are responsible for making additional copies of the form. Other reporting requirements are included in the permit conditions. The well identification tags required to be installed on each system well by permit conditions will be mailed to you separately once received from our contractor.

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have **30 calendar days** from the date of service (the date you actually received this decision or the date it was mailed to you, whichever occurred first) within which to appeal this decision by filing a notice of appeal in accordance with the Rules of the Supreme Court of Virginia with the Director, Department of Environmental Quality. In the event that this decision is served on you by mail, three days are added to that period. Refer to Part 2A of the Rules of the

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Supreme Court of Virginia for additional requirements governing appeals from administrative agencies.

In addition, any owner aggrieved by any action of the State Water Control Board taken without a formal hearing, or by inaction of the Board, may petition in writing for a formal hearing of such owner's grievance, provided a petition requesting such hearing is filed with the Board. Said petition must meet the requirements set forth in 9 VAC 25-230-130(b) of the Board's Procedural Rule No. 1. In cases involving actions of the Board, such petition must be filed within thirty days after notice of such action is mailed to such owner by certified mail.

If you should have any questions, please contact Tony Cario at (804) 698-4089 or [anthony.cario@deq.virginia.gov](mailto:anthony.cario@deq.virginia.gov).

Respectfully,

A handwritten signature in black ink, appearing to read 'Skudlas', with a long horizontal flourish extending to the right.

Scott W. Kudlas

Director, Office of Water Supply

Enclosures: Groundwater Withdrawal Permit, Groundwater Withdrawal Reporting Form,

cc: Craig Nicol, Water Withdrawal Permitting Program Manager  
VDH Office of Drinking Water (via e-mail)



COMMONWEALTH of VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
**EXISTING USER PERMIT**  
TO WITHDRAW GROUNDWATER IN THE  
EASTERN VIRGINIA GROUNDWATER MANAGEMENT AREA

**Permit Number: GW00108EU**

Effective Date: April 1, 2016

Expiration Date: March 31, 2026

Pursuant to Section 62.1-256 of the Ground Water Management Act of 1992 (Chapter 25, Title 62.1 of the Code of Virginia) and the Groundwater Withdrawal Regulations (Regulations)(9VAC25-610-10 *et seq.*), the State Water Control Board (Board) hereby authorizes the Permittee to withdraw and use groundwater in accordance with this permit.

Permittee Northern Neck Water Inc.  
Facility Bells Cove Water System  
Facility Address 4542 Horners Mill Rd.  
Montross, VA 22520

The Permittee's authorized groundwater withdrawal shall not exceed:

3,600,000 gallons per year,  
500,000 gallons per month.  
27,200 gallons per day

The permitted withdrawal will be used to provide a non-municipal public water supply. Other uses are not authorized by this permit.

The Permittee shall comply with all conditions and requirements of the permit.

By direction of the State Water Control Board, this Permit is granted by:

Signed 

Date 4/1/16

Director, Office of Water Supply

This permit is based on the Permittee's application submitted on March 30, 2014, and subsequently amended to include supplemental information provided by the Permittee. The following are conditions applicable to all permits and govern the system set-up and operation, monitoring, reporting, and recordkeeping pertinent to the Regulations.

## Part I Operating Conditions

### A. Authorized Withdrawal

1. The withdrawal of groundwater shall be limited to the following wells identified in the table below. Withdrawals from wells not included in Table 1 are not authorized by this permit and are therefore prohibited. 9VAC25-610-140(A)

**Table 1**

<i>Owner Well Name</i>	<i>DEQ Well #</i>	<i>Well Depth (ft)</i>	<i>Screen Intervals (ft)</i>	<i>Aquifer</i>	<i>Latitude</i>	<i>Longitude</i>
Well #1A	166-00159	376	360-370	Not Determined*	37° 58' 37.11"	-76°33' 30.07"
Well #2	166-00158	389	375-389	Not Determined*	37° 58' 56.1"	-76°33' 20.34"

\* No geophysical logs were found for the system wells/service area to support this determination

2. Any actions that result in a change to the status, construction, or pump intake setting of wells included in this permit must be pre-approved by the Department of Environmental Quality (Department) in writing prior to implementing the change, and a revised GW-2 Form must be submitted to the Department within 30 days after the physical construction of a well is altered or the pump intake setting has been changed. If changes are a result of an emergency, notify the Department within 5 days from the change. 9VAC25-610-140 (C)

### B. Public Water Supplies

1. Daily withdrawal limits set forth in this permit are consistent with the requirements and conditions of the Virginia Department of Health Waterworks Construction Permit No. 400403. 9VAC25-610-140(A)(5)
2. The Permittee shall submit copies of an updated Waterworks Operation Permit and the associated Engineering Description Sheets to the Department within 30 days of receipt from the Virginia Department of Health. 9VAC25-610-140(C)

### C. Pump Intake Settings

The Permittee shall not knowingly place a pump or water intake device lower than the top of the uppermost confined aquifer that a well utilizes as a groundwater source or lower than the bottom of an unconfined aquifer that a well utilizes as a groundwater source in order to prevent dewatering of the aquifer, loss of inelastic storage, or damage to the aquifer from compaction. 9VAC25-610-140(A)(6)

#### **D. Withdrawal Reporting**

1. Water withdrawn from each well shall be recorded monthly at the end of each month and reported to the Groundwater Withdrawal Permitting Program, in a paper or electronic format provided by the Department, by the tenth (10<sup>th</sup>) day of each January, April, July and October for the respective previous standard quarter. Records of water use shall be maintained by the Permittee in accordance with Part III, Condition F, of this permit. 9VAC25-610-140(A)(9)
2. The Permittee shall report any amount in excess of the permitted withdrawal limit by the fifth (5<sup>th</sup>) day of the month following the month when such a withdrawal occurred. Failure to report may result in compliance or enforcement activities. 9VAC25-610-140(C)

#### **E. Well Tags**

1. Each well that is included in this permit shall have affixed to the well casing, in a prominent place, a permanent well identification plate that records, at a minimum, the DEQ well identification number, the groundwater withdrawal permit number, the total depth of the well, and the screened intervals in the well. Such well identification plates shall be in a format specified by the Board and are available from the Department. 9VAC25-610-140(12)
2. Well tags shall be affixed to the appropriate well casing within 30 days of receiving the tags from the Department. The accompanying well tag installation certification form shall be returned to the Department within 60 days of receipt of the tags. 9VAC25-610-140(C)

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### **Part II Special Conditions**

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Pursuant to 9VAC25-610-140(B) and (C), the following Special Conditions apply to this permit in order to protect the public welfare, safety, and health or conserve, protect and help ensure the beneficial use of groundwater.

#### **A. Pump Intake Depth Determination**

Prior to a request for expansion or renewal of the permit, the Permittee shall ensure that the pump intake depths for Well(s) ) #1A (DEQ# 166-00159) and #2 (DEQ# 166-00158) are set above the maximum pump setting depth as provided by Department staff based on new geophysical log data obtained by the Permittee. At least two weeks prior to the scheduled pump intake determinations; the Permittee shall notify the Department of the work schedule. The Permittee shall advise DEQ, in writing, of the pump setting within 30 days of the depth determination or pump depth adjustment.

#### **B. Geophysical Borehole Logging 9VAC25-610-140(C)**

By December 31, 2020, a complete and DEQ approved suite of geophysical logs (Spontaneous Potential, Single Point Resistance, 16/64 Short and Long Normal, Natural Gamma at a scale of 20 ft per inch) shall be obtained from a geophysical bore hole at a location and depth approved by the Department. An electronic and hard copy of the geophysical logs shall be submitted to the Department to allow

determination of the top and bottom of the aquifer in use. An induction log from Well #2 (DEQ #166-00158) may potentially be substituted for the complete suite of geophysical logs as long as: a) the full length of the well can be logged; b) the Department's review of the induction log finds the log acceptable, and c) the induction log is obtained and approved by the Department with 1 year of the effective date of the permit (April 1, 2017).

At least two weeks prior to the scheduled geophysical logging, including induction logging, the Permittee shall notify the Department of the drilling timetable to receive any further guidance needed on performing the geophysical logging and to allow scheduling of Department staff to make a site visit during the logging.

### **C. Water Conservation and Management**

1. The Permittee has committed to submit an approvable Water Conservation and Management Plan meeting the requirements of 9VAC25-610-100 within two years of the effective date of this permit (April 1, 2018) and has agreed to have the plan incorporated into the permit. Once an approvable plan is received by the Department, the permit will be modified to include a water savings allotment of 50,000 gallons added to the monthly limit, an addition of 360,000 gallons added to the annual limit, and the Plan will be incorporated into the permit as a permit condition.
2. The Permittee has committed to install individual in-line totalizing flow meters on all system connections within two years of the effective date of the permit (April 1, 2018) and commits to regular monitoring of the meters. Once documentation is received by the Department showing that all connections within the system have been individually metered and the meter monitoring program has been initiated, the permit will be modified to include a water savings allotment of 50,000 gallons added to the monthly limit, an addition of 360,000 gallons added to the annual limit, and the requirement for an annual audit report based on the meter data will be incorporated into the permit as a permit condition.

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## **Part III General Conditions**

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### **A. Duty to Comply**

The Permittee shall comply with all conditions of this permit. Nothing in this permit shall be construed to relieve the permit holder of the duty to comply with all applicable federal and state statutes, regulations and prohibitions. Any permit violation is a violation of the law and is grounds for enforcement action, permit termination, revocation, modification, or denial of a permit application.  
9VAC25-610-130(A)

### **B. Duty to Cease or Confine Activity**

It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the activity for which a permit has been granted in order to maintain compliance with the conditions of the permit. 9VAC25-610-130(B)

### **C. Duty to Mitigate**

The Permittee shall take all reasonable steps to avoid all adverse impacts that may result from this withdrawal as defined in 9VAC25-610-10 and provide mitigation of the adverse impact when necessary as described in 9VAC25-610-110(D)(3)(g). 9VAC25-610-130(C)

### **D. Inspection, Entry, and Information Requests**

Upon presentation of credentials, the Permittee shall allow the Board, the Department, or any duly authorized agent of the Board, at reasonable times and under reasonable circumstances, to enter upon the Permittee's property, public or private, and have access to, inspect and copy any records that must be kept as part of the permit conditions, and to inspect any facilities, well(s), water supply system, operations, or practices (including sampling, monitoring and withdrawal) regulated or required under the permit. For the purpose of this section, the time for inspection shall be deemed reasonable during regular business hours. Nothing contained herein shall make an inspection time unreasonable during an emergency. 9VAC25-610-130(D)

### **E. Duty to Provide Information**

The Permittee shall furnish to the Board or Department, within a reasonable time, any information that the Board may request to determine whether cause exists for modifying or revoking, reissuing, or terminating the permit, or to determine compliance with the permit. The Permittee shall also furnish to the Board or Department, upon request, copies of records required to be kept by regulation or this permit. 9VAC25-610-130(E)

### **F. Monitoring and Records Requirements**

1. The Permittee shall maintain a copy of the permit on-site and/or shall make the permit available upon request. 9VAC25-610-130(E)
2. Monitoring of parameters shall be conducted according to approved analytical methods as specified in the permit. 9VAC25-610-130(F)(1)
3. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. 9VAC25-610-130(F)(2)
4. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart or electronic recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit, for a period of at least three years from the date of the expiration of a granted permit. This period may be extended by request of the Board at any time. 9VAC25-610-130(F)(3)
5. Records of monitoring information shall include as appropriate (9VAC25-610-130(F)(4)):
  - a. the date, exact place and time of sampling or measurements;
  - b. the name(s) of the individual(s) who performed the sampling or measurements;
  - c. the date the analyses were performed;

- d. the name(s) of the individual(s) who performed the analyses;
- e. the analytical techniques or methods supporting the information, such as observations, readings, calculations and bench data used;
- f. the results of such analyses; and
- g. chain of custody documentation.

## **G. Environmental Laboratory Certification**

The Permittee shall comply with the requirement for certification of laboratories conducting any tests, analyses, measurements, or monitoring required pursuant to the State Water Control Law (§ 62.1-44.2 et seq.), Environmental Laboratory Certification Program (§ 2.2-1105*et seq.*), Certification for Noncommercial Environmental Laboratories (1VAC30-45), and/or Accreditation for Commercial Environmental Laboratories (1VAC30-46), and:

- a. Ensure that all samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
- b. Conduct monitoring according to procedures approved under 40CFR Part 136 or alternative methods approved by the U.S. Environmental Protection Agency.
- c. Periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation at intervals that will ensure accuracy of measurements. (1VAC30-45-20)

## **H. Future Permitting Actions**

- 1. A permit may be modified or revoked as set forth in Part VI of the Regulations. 9VAC25-610-290 and 9VAC25-610-130(G)
- 2. If a Permittee files a request for permit modification or revocation, or files a notification of planned changes, or anticipated noncompliance, the permit terms and conditions shall remain effective until the Board makes a final case decision. This provision shall not be used to extend the expiration date of the effective permit. 9VAC25-610-130(G)
- 3. Permits may be modified or revoked upon the request of the Permittee, or upon Board initiative, to reflect the requirements of any changes in the statutes or regulations. 9VAC25-610-130(G)
- 4. The Permittee shall schedule a meeting with the Department prior to submitting a new, expanded or modified permit application. 9VAC25-610-85
- 5. A new permit application shall be submitted 270 days prior to any proposed modification to this permit (i) that will result in an increase of withdrawal above permitted limits or violate the terms and conditions of this permit; or (ii) to continue a withdrawal greater than 300,000 gallons in any month while an application for renewal is being processed. 9VAC25-610-96
- 6. The Permittee shall provide all information described in 9VAC25-610-94 for any reapplication. 9VAC25-610-96(C)
- 7. The Permittee must notify the Department in writing of any changes to owner and facility contact information within 30 days of the change. 9VAC25-610-140 (C)



## **I. Metering and Equipment Requirements**

1. Each well and/or impoundment or impoundment system shall have installed an in-line totalizing flow meter to read gallons, cubic feet, or cubic meters on each permitted well prior to beginning the permitted use. Meters shall produce volume determinations within plus or minus 10% of actual flows. 9VAC25-610-140(7)(A)(b)
  - a. A defective meter or other device must be repaired or replaced within 30 days.
  - b. A defective meter is not grounds for not reporting withdrawals. During any period when a meter is defective, generally accepted engineering methods shall be used to estimate withdrawals. The period during which the meter was defective must be clearly identified in the groundwater withdrawal report required by Part I, Subsection D of this permit. An alternative method for determining flow may be approved by the board on a case-by-case basis.
2. Each well shall be equipped in a manner such that water levels can be measured during pumping and non-pumping periods without dismantling any equipment. Any opening for tape measurement of water levels shall have an inside diameter of at least 0.5 inches and be sealed by a removable plug or cap. The Permittee shall provide a tap for taking raw water samples from each permitted well. 9VAC25-610-140(A)(7)(e)

## **J. Minor Modifications**

1. A minor modification to this permit must be made to replace an existing well(s) or add an additional well(s) provided that the well(s) is screened in the same aquifer(s) as the existing well(s) and is in the near vicinity of the existing well(s), the total groundwater withdrawal does not increase, the area of impact does not increase, and the well has been approved by the Department prior to construction. 9VAC25-610-330(B)(4) and (5)
2. A minor modification to this permit must be made to combine withdrawals governed by multiple permits when the systems are physically connected as long as interconnection will not result in additional groundwater withdrawal and the area of impact will not increase. 9VAC25-610-330(B)(6)
3. Minor modifications to this permit must also be made to.
  - a. Change an interim compliance date up to 120 days from the original compliance date, as long as the change does not interfere with the final compliance date. 9VAC25-610-330(B)(7)
  - b. Allow for change in ownership when the Board determines no other change in the permit is necessary and the appropriate written agreements are provided in accordance with the transferability of permits and special exceptions. 9VAC25-610-320 and 9VAC25-610-330(B)(8)
  - c. Revise a Water Conservation and Management Plan to update conservation measures being implemented by the Permittee that increase the amount of groundwater conserved. 9VAC25-610-330(B)(9)

## **K. Well Construction**

At least two weeks prior to the scheduled construction of any well(s), the Permittee shall notify the Department of the construction timetable and receive prior approval of the well(s) location(s) and acquire the DEQ Well number. All wells shall be constructed in accordance with the following requirements.

1. A well site approval letter or well construction permit must be obtained from the Virginia Department of Health prior to construction of the well. 9VAC25-610-130(A)
2. A complete suite of geophysical logs (Spontaneous Potential, Single Point Resistance, 16/64 Short and Long Normal, Natural Gamma) shall be completed for the well and submitted to the Department along with the corresponding completion report. 9VAC25-610-140(C)
3. The Permittee shall evaluate the geophysical log and driller's log information to estimate the top of the target aquifer, and therefore, a depth below which the pump shall not be set. The Permittee's determination of the top of the target aquifer shall be submitted to the Department for review and approval, or approved on site by the Department's Groundwater Characterization staff, prior to installation of any pump. 9VAC25-610-140 (A)(6)
4. The Permittee shall install gravel packs and grout in a manner that prevents leakage between aquifers. Gravel pack shall be terminated close to the top of the well screen(s) and shall not extend above the top of the target aquifer. 9VAC25-610-140(C)
5. A completed GW-2 Form and any additional water well construction documents shall be submitted to the Department within 30 days of the completion of any well and prior to the initiation of any withdrawal from the well. 9VAC25-610-140(C)
6. The assigned DEQ Well number shall be included on all well documents. 9VAC25-610-140(C)

#### **L. Permit Reopening**

This permit may be reopened for the purpose of modifying the conditions of the permit as follows:

1. To meet new regulatory standards duly adopted by the Board. 9VAC25-610-140(A)(11)
2. When new information becomes available about the permitted withdrawal, or the impact of the withdrawal, which had not been available at permit issuance and would have justified the application of different conditions at the time of issuance. 9VAC25-610-310(B)(1)
3. When the reported withdrawal is less than 60% of the permitted withdrawal amount for a five year period. 9VAC25-610-310(B)(2)
4. If monitoring information indicates the potential for adverse impacts to groundwater quality or level due to this withdrawal. 9VAC25-610-140(C)

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#### **Part IV**

#### **Items needed for Re-Application, Expansion, or Modification**

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To ensure uninterrupted operation of the Permittee's withdrawal system, a complete application must be submitted 270 days prior to the expiration date of this permit July 4, 2025 or the start of a proposed modification. The following is a list of items or actions that, along with the completed application, will be required, at a minimum, to ensure an application would be deemed complete. 9VAC25-610-10 *et seq.*

1. A pre-application meeting with Department staff
2. A Water Conservation and Management Plan

A Water Conservation and Management Plan (WCMP) is an operational plan and shall be consistent with local and regional water supply plans in the Permittee's geographic area. The WCMP shall be specific to the type of water use and include the following: 9VAC25-610-100(B)

- a. Requirements for the use of water saving equipment and processes to ensure the most efficient use of groundwater and decrease the water demand;
  - b. A water loss reduction program which defines the applicant's leak detection and repair program;
  - c. A water use education program which contains requirements for the education of water users and training of employees controlling water consuming processes to assure that water conservation principles are well known by the users of the resource;
  - d. An evaluation of potential water reuse options and assurances that water shall be reused in all instances where reuse is practicable and not prohibited by other regulatory programs;
  - e. Requirements for mandatory water use reductions and compliance with restrictions during water shortage emergencies declared by the local governing body or water authority consistent with §§ 15.2-923 and 15.2-924 of the Code of Virginia. This should include, where appropriate, ordinances in municipal systems prohibiting the waste of water generally and requirements providing for mandatory water use restrictions in accordance with drought response and contingency ordinances implemented to comply with 9VAC25-780-120 during water shortage emergencies. Penalties for failure to comply with mandatory water use restrictions should be included in municipal system plans.
3. Evaluation of potential alternative water sources, including potential reuse sources, storm water capture, and surface water sources, municipal supplies, etc.
  4. Signed Local Government Ordinance Form (LGOF). This form is supplied by the Department that the applicant sends to the local governing body in which the withdrawal is to occur, to obtain notification that the location and operation of the withdrawing facility is in compliance with all ordinances adopted pursuant to Chapter 22 (§ 15.2-2200 et seq.) of Title 15.2 of the Code of Virginia.
  5. Mitigation Plan. This is a plan to mitigate potential adverse impacts from the proposed withdrawal on existing groundwater users for systems where the predicted area of impact extends beyond the property owned by the Permittee.
  6. Permit fee for non-agricultural applicants.



**COMMONWEALTH of VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL QUALITY**

**PERMIT ISSUANCE FACT SHEET**

**EXISTING USER April 1, 2016**

Groundwater Withdrawal Permit Number: GW00108EU

Application Date: March 30, 2014

DEQ has reviewed the application for a Groundwater Withdrawal Permit for an Existing User in the expanded Eastern Virginia Groundwater Management Area. Based on the information provided in the application and subsequent revisions, DEQ has determined that there is a reasonable assurance that the activity authorized by the permit is an approvable beneficial use as defined by the regulations. The following details the application review process and summarizes relevant information for developing the Permit and applicable conditions.

**Permittee / Legal Responsible Party**

Name & Address: Northern Neck Water Inc.  
4542 Horners Mill Rd.  
Montross, VA 22520  
Phone: (804) 761-7724

**Facility Name and Address**

Name & Address: Bells Cove Water System  
Along Rt 712, North of the Town of Callao  
Phone: (804) 761-7724

**Contact Information:**

Name: Kevin Gouldman  
E-mail: nnwater@gmail.com  
Phone: (804) 761-7724

April 1, 2016

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**Processing Dates**

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Processing Action	Date Occurred /Received
Notification of Expansion:	1/6/2014
Application Received:	3/27/2014
Permit Fee Deposited by Accounting:	3/28/2014
Application Review Conducted:	3/27/2014
Request for Additional Information Sent:	3/27/2014
Response to Request for Additional Information Received:	3/27/2014
Application Complete Letter:	4/2/2014
Notice of Deficiency Letter Sent:	None sent
Response to Notice of Deficiency Letter Received:	None required
Draft Permit Package Sent:	2/3/2016

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**Application**

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**Description:**

Background / Purpose of Facility/ Water Use Category: The Bell Cove Water Supply is a Non-Municipal Public Water Supply with 58 residential connections. This water system serves 58 homes that were built on the outskirts of Callao, Virginia. Northern Neck Water Inc. purchased the system from EL Goddard in 2000 and has operated the public water system since the purchase. Currently, all 58 connections are un-metered, but Northern Neck Water states in the application that they plan to meter all of the systems they own by 2020. The system has two active wells and one abandoned well.

**Location of Facility/Withdrawal:**

Water Supply Region: Northern Neck

City/County: Northumberland

Aquifer: Not determined

Conjunctive Use Water body: The system does not have an associated surface water withdrawal and therefore it is not a conjunctive use system.

**Withdrawal Use, Current Need, and Projected Demand:**

Historic Use Claim and Demonstration of Claim including any Estimations and Conservation Measures with additional water requested:

*April 1, 2016*

The documented claim period was from January 1, 2011 through January 1, 2012 with the requested amount of 3,880,080 gallons. This was the highest use reported during the allowable claim period. The applicant reports many upgrades to this system including a new well, storage tank and boosters, water main replacement and location of existing customer's service valves and replacement.

Additional water was not requested.

#### Withdrawal Volumes Requested

The applicant requested the following withdrawal volumes based upon the system's historic groundwater use.

Period of Withdrawal	Actual Volume (gal.)	Volume in MGD
Maximum Annual:	3,880,080	0.011

Historic Withdrawals: No VWUDS data was found for the Bells Cove Water system. Well 1A was completed in 2000. Well 2 was completed in 1988. Well 1 failed, was abandoned, and replaced with Well 1A. Withdrawals were reported to Northumberland County and provided to DEQ for 2011. The requested amount equates to a per connection daily use of 183 g/d/c for the 58 connections.

#### DEQ Recommended Withdrawal Limits:

The requested amount of 3,880,080 g/y wasn't duplicated by staff's review of the data provided and an amount of 3,519,000 gallons was derived from the data. This number was rounded to 3,600,000 g/y in accordance with the April 6, 2015 "Rounding Memo". From the five years of data provided (2009 to 2013) the 2010 use came close to the 3.9 mg/y level at 3,826,553 but monthly data was not provided to support this amount. Withdrawal for 2012 and 2013 were around 3.5 and 3.4 mg/y respectively. In addition, reported growth is slow with 4 connections added in the last 14 years at the time of application. It appears that the 3,600,000 g/y amount will support the system during the permit term, but if the applicant can submit additional data to support the 2010 reported withdrawal, this amount will be revised.

Reviewing the monthly historic use, the highest reported monthly amount of 780,000 gallons (July 2011) was not verified and the 467,450 gallons reported for January 2011 became the highest reported monthly use in the documented period. Based on the data, a monthly limit of 500,000 gallons appears appropriate to allow normal operation and seasonal fluctuations.

Period of Withdrawal	Actual Volume (gal.)	Volume in MGD
Maximum Monthly:	500,000	0.002
Maximum Annual:	3,600,000	0.01

April 1, 2016

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**Part I**  
**Operating Conditions**

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**Authorized Withdrawals:**

Owner Well Name	DEQ Well #	Aquifer	Type	Pump Intake Limit bls
Well #1A	166-00159	Not Determined	Production	Not Determined
Well #2	166-00158	Not Determined	Production	Not Determined

**Additional Wells:**

Observation Wells: No observation wells are associated with the system.

Abandoned Wells:

Owner Well Name	DEQ Well #	Aquifer
Well #1	166-00001	Not determined

Out of Service Wells: No Out of Service wells are associated with the system.

**Public Water Supply:**

The Bells Cove Water System was granted a Waterworks Construction Permit under Permit No: 400403 with an effective date of January 31, 2003. This permit covered the Well 1A construction and additional storage and booster tanks but the final Waterworks Operations Permit has not been issued yet. The current design capacity for the Domestic Well system of 27,200 gallons per day is based on 68 connections with well pump capacity being the limiting factor. This is the amount the revised operations permit will be based on.

**Pump Intake Settings:**

The 189 ft pump intake stated for Well #1A came from the 2000 Well Yield Report. The applicant did not find any indication in their records of another pump setting. Given that the well yield test was conducted by a Northern Neck Water employee, we will assume that the 189 ft depth was for the permanent pump and is still correct.

Documentation dated 2003 for the Well #2 pump intake being set at 168 ft was provided in the application from the Water Yield Report. The applicant did not find any indication in their records that the pump intake had been altered. Since the yield test was conducted in 2003, it follows the regular production pump was used for the test (the well was installed in 1988) and that the 168 ft is correct. Geophysical logs are not available for the system wells so a comparison of the pump intake to the top of the uppermost aquifer in use cannot be made at this time.



April 1, 2016

### **Withdrawal Reporting:**

The withdrawal from all four system production wells is to be recorded monthly and reported quarterly on the form supplied with the permit as for all permitted withdrawals. Water level or water quality monitoring is not being required for the Existing User permit term.

### **Well Tags:**

Well tags will be ordered for the two production wells will be issued with the permit. The permit requires that the well tags be affixed to the appropriate well casing within 30 days of receiving the tags and the well tag installation certification form is to be returned to the Department within 60 days of receipt of the tags.

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## **Part II Special Conditions**

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### **Unknown Well Construction:**

Well construction data was available for both active wells (#1A and #2) and unknown well construction is not an issue for this application.

### **Well Abandonments:**

Well #1 was abandoned and replaced with Well #1A. No documents provided for abandonment but the VDH permit documents indicates that it was abandoned and the applicant states that he abandoned the well to depth with neat cement in 2000, so it is understood that the well was permanently abandoned and no further work is necessary.

Wells constructed with gravel packing extending upward from the screened section of the well and into overlying aquifers can provide a pathway for aquifer interaction and pose a potential risk to water quality and water quantity (levels). This type of well construction can lead to the need to properly abandon wells in the permitting process. Well #1A was constructed with limited gravel packing from 345 to 376 ft depths and does not appear to present a risk. The gravel pack extent for Well #2 is not known and no action will be required at this time.

### **Pump Intake Depth Determination/Reset**

Prior to a request for expansion, renewal, or expiration of the permit, the permittee shall ensure that all pump intake depths meet the allowable depth limit as provided by Department staff based on existing data or new geophysical log data obtained by the permittee. The permittee is to notify the Department of the work schedule and to submit written documentation of the pump setting within 30 days of the work. If new geophysical data is being collected during the permit term, the pump intake investigation or re-set (if warranted) should be timed after the collection of geophysical logs and DEQ evaluation of the logs so that a second pump adjustment is not required.

*April 1, 2016***Geophysical Borehole Logging**

A geophysical log has not been collected and a full suite of logs is needed for the facility to allow for determination of the aquifer(s) in use and the top of the uppermost aquifer in use, which becomes the maximum allowable pump intake depth for the well. A full suite of geophysical logs requires that a new borehole at least to the depth of the deepest facility well be constructed and the logging equipment run down the full depth of the hole. However, since Well #2 is constructed of PVC casing and is the deeper of the two wells, an induction log may be run in this well first and if the induction log is confirmed to provide the needed data per the Department review, the full suite of logs will not be required until additional wells are installed.

The requirement for geophysical logging was placed in Section II of the permit with the due date of by December 31, 2020. If attempted, the induction logging must be done and accepted by the Department within one year of permit issuance to give time for the Permittee to plan and conduct the full suite of geophysical logs by the 2020 due date, if the full suite is determined to be necessary per the Department.

**Water Conservation and Management:**

The applicant reports many upgrades to this system including a new well, storage tank and boosters, water main replacement and location of existing customer's service valves and replacement. However, no documents supporting a water conservation value for these upgrades were provided. Currently all 58 connections are un-metered but the permittee stated that they are in the process of metering their water systems and hope to have this completed by 2020.

A Water Conservation and Management Plan (WCMP) meeting the requirements of 9VAC25-610-100(B) was not submitted. The permittee intends to submit an approvable WCMP, with the understanding that a 10% allotment can be then be applied to the limits and a Special Permit Condition will be added. Including the 10 % allotment will allow for a 50,000 gallons added to the monthly limit and an addition of 360,000 gallons added to the annual limit. (See Existing User Water Savings Achieved through Water Conservation and Management Memo dated 2/4/15).

The permittee expects to complete the installation of individual connection meters at the facility, with the understanding that a 10% allotment can then be applied to the limits and a Special Permit Condition will be added that provides for tracking of the meter use and audit data. Including the 10 % allotment will allow for a 50,000 gallons added to the monthly limit and an addition of 360,000 gallons added to the annual limit. (See Existing User Water Savings Achieved through Water Conservation and Management Memo dated 2/4/15.)

If both the WCMP is provided and individual connection meters are installed, then the monthly permit limit can be increased to 600,000 gallons and the annual permit limit can be increased to 4,320,000 gallons. A timeframe of two years is allotted in the permit conditions to complete these projects to be eligible for the 10% each permitted amount increase.

**Other Conditions:** No other issues or concerns were noted with the application information that required additional special conditions.

April 1, 2016

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**Part III**  
**General Conditions**

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General Conditions are applied to all Groundwater Withdrawal Permits, as stated in 9 VAC25-610-10 et seq., of the Groundwater Withdrawal Regulations.

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**Part IV**  
**Items needed for Re-Application, Expansion, or Modification**

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The items listed in Part IV of the Permit are items or actions that will be needed along with a completed application if the permittee applies for renewal, expansion or modification. They have been included in the permit to help plan for fiscal impacts and project management activities and ensure uninterrupted operation of the withdrawal system during future permitting processes.

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**Staff Findings and Recommendations**

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The staff believes that Northern Neck Water, Inc. has provided a complete application to the extent practicable and should be allowed to withdraw ground water based on the Existing User application for the Bells Cove water system withdrawal.

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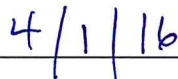
**Attachment (none)**

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Approved:

  
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Director, Office of Water Supply

Date:

  
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